BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Engineering Pearson BTEC International Level 3 Foundation Diploma in Engineering Pearson BTEC International Level 3 Diploma in Engineering Pearson BTEC International Level 3 Diploma in Mechanical Engineering Pearson BTEC International Level 3 Diploma in Digital Engineering Pearson BTEC International Level 3 Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Diploma in Aeronautical Engineering Pearson BTEC International Level 3 Extended Diploma in Engineering Pearson BTEC International Level 3 Extended Diploma in Mechanical Engineering Pearson BTEC International Level 3 Extended Diploma in Digital Engineering Pearson BTEC International Level 3 Extended Diploma in Manufacturing Engineering Pearson BTEC International Level 3 Extended Diploma in Aeronautical Engineering
Unit number and title	**Unit 11: Engineering Maintenance and Condition Monitoring Techniques**
Learning aim(s)	**C:** Undertake a maintenance activity safely on a piece of plant or equipment to ensure its continued safe operation
Assignment title	Carrying out a maintenance activity safely
Assessor	
Issue date	
Hand in deadline	
Vocational Scenario or Context	You are working as a trainee maintenance technician for an engineering organisation that manufactures a range of household appliances using both manual and CNC machinery. Your job includes maintaining a range of different pieces of machinery. Your supervisor is pleased with your understanding of the need for maintenance and wants to now assess your ability to follow maintenance procedures. Your supervisor has now asked you to prepare for and complete a maintenance activity on a piece of equipment to make sure that is continues to operate safely.

Task 1	Your tutor will provide you with an example of a piece of engineering plant or equipment that you will need to plan, prepare for, complete and review the activity to identify future maintenance needs. **To do this:** You will need to plan the maintenance activity and complete a risk assessment. Your plan must include a range of information including: • Details of the equipment to be maintained, including type, description, location, identification number • Type of maintenance procedure, including a description of the procedure • Frequency of procedure and the date of the next procedure • Specialist skills required that are needed and the personnel involved • Equipment status at the time of maintenance, for example, running, shut down, isolated. • Task list , including the estimated time and actual time for each task • Tools, equipment and materials required for the procedure • A checklist for testing and handover on completion of maintenance. You will also need to consider health and safety procedures for the maintenance activity, including: the use of PPE; rules and maintenance protocols such as safe isolation and permits to work; reporting procedures; and legislation that may apply to the activity, such as COSHH, Manual Handling Operations regulations or Lifting Operations and Lifting Equipment regulations or similar suitable national health and safety practices and laws. You need to produce a risk assessment of the general working environment and specific maintenance procedure, that will include: • Defining hazard by inspection of the general environment and location, • Defining risk by determining how hazards may cause injury • Putting control measures in place to reduce risk, e.g. isolating the work area Once you have completed your plan you will need to prepare the materials and equipment needed to carry out the maintenance activity, and review the procedures that you will need to follow. You will need to obtain appropriate hand tools, consumables and replacement parts. **You then need to:** Carry out the maintenance activity safely, to return the piece of plant or equipment to service: • Preparing the equipment for maintenance, by disassembly, removing or stripping items

	• visually inspect components • repair, replace or replenish as required • reassemble item, inspect and test On completion of the maintenance task you need to complete documentation and return the item to service. If you make any changes to your plan you need to record these and give reasons for this or state how the plan worked. You also need to provide information about the future maintenance needs of the plant or equipment.
Checklist of evidence required	A detailed maintenance and condition monitoring plan and log, including supporting paperwork, when carrying out maintenance and condition monitoring activities safely. Observation records and witness statements of completing the routine maintenance activity.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
11/C.D3	Refine, during the process, the planning and performance of a maintenance activity on an item of plant or equipment safely, accurately and efficiently, returning it to service, identifying any future maintenance requirements and/or advice.
11/C.M4	Produce a detailed and accurate plan and risk assessment to complete a maintenance activity on a piece of plant or equipment.
11/C.M5	Perform a maintenance activity safely, and accurately on a piece of plant or equipment returning it to service.
11/C.P4	Produce a plan and risk assessment to complete a maintenance activity on a piece of plant or equipment.
11/C.P5	Prepare materials, equipment, and procedures to complete maintenance activity on a piece of plant or equipment.
11/C.P6	Complete a maintenance activity safely on a piece of plant or equipment, returning it to service.

Sources of information to support you with this Assignment	**Books** Mobley R Keith – Maintenance Engineering Handbook, 8th edition (McGrawHill Professional, 2014) ISBN 9780071826617. Richardson D – Plant Equipment and Maintenance Engineering Handbook (McGraw-Hill Professional, 2013) ISBN 9780071809894. Levitt J – The Handbook of Maintenance Management, 2nd edition (Industrial Press, Inc., 2010) ISBN 9780831133894 **Websites** iso.org/iso-45001-occupational-health-and-safety.html hse.gov.uk sciencedirect.com lifetime-reliability.com maintenanceonline.co.uk plantengineering.com **Above are some examples of websites. Further useful resources may be found at** qualifications.pearson.com/en/support/published-resources.html#step1